

Ice Sheet System Model

Quick Start Guide

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Example: Steady state ice shelf with square domain

- Go to working directory

```
1 $ cd $ISSM_TIER/examples/SquareIceShelf/
```

- Copy the `startup.m` file to current directory

```
1 $ cp $ISSM_TIER/startup.m .
```

- Start-up Matlab

```
1 $ matlab
```

- In Matlab, create empty model structure

```
1 >> md=model;
```

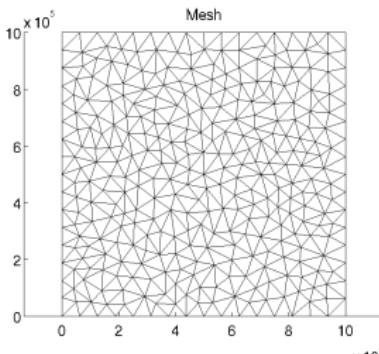
- Build mesh over domain with desired resolution (try 50,000 m)

```
1 >> md=triangle(md, 'DomainOutline.exp', 50000);
```

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- To plot mesh...

```
1  >> plotmodel(md, 'data', 'mesh');
```



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Example: Steady state ice shelf with square domain

- Define glacier type: grounded or ungrounded (default is grounded); typically takes form of...

```
1  >> md=setmask(md,'floatingicename.exp','groundedicename.exp')
```

- For our purposes, set floating ice to 'all'

```
1  >> md=setmask(md,'all','','');
```

- Call parameterization file (here: use 'Square.par')

```
1  >> md=parameterize(md,'Square.par');
```

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- Select ice flow model (here: MacAyeal/Morland Shallow-Shelf model; no vertical shear)

```
1  >> md=setflowequation(md,'macayeal','all');
```

- Compute velocity field for the domain

```
1  >> md=solve(md,DiagnosticSolutionEnum);
```

- Plot the velocity field

```
1  >> plotmodel(md,'data',md.results.DiagnosticSolution.Vel,...  
2      ' xlabel','[m]', ' ylabel','[m]', ...  
3      ' title','Square Ice Shelf: Velocity');
```

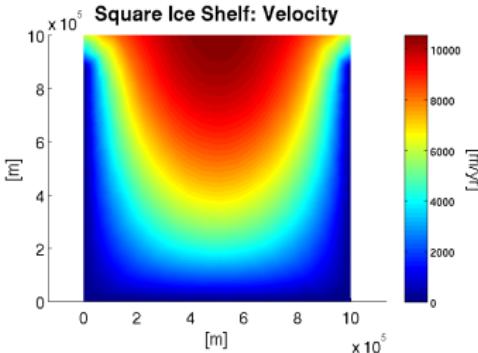
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- Save figure...

```
1  >> print -dpng Velocity.png;
```

A wide-angle photograph of a desolate, icy terrain. In the foreground, a flat expanse of white, textured snow or ice stretches across the frame. Beyond it, a range of mountains rises, their peaks covered in thick, white snow. The mountains are rugged, with deep shadows in the valleys and bright reflections on the snow. The sky above is a clear, pale blue, with a few wispy clouds near the horizon.

Thanks!